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EXAMINER

ZIMMERMAN, GLENN

ART UNIT PAPER NUMBER

2879

DATE MAILED: 02/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/816,328

Applicant(s)

SANO ET AL.

Examiner

Glenn Zimmerman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 13-15 is/are rejected.
- 7) ☒ Claim(s) 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Amendment*

Amendment, filed on December 30, 2002, has been entered and acknowledged by the examiner.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1, 4, 5, 10 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Komaki et al. U.S. Patent 6,236,160.

Regarding claims 1, Komaki et al. disclose a plasma display apparatus (**title**) comprising: a plurality of display element electrodes each including a pair of electrode segments (**T-shaped electrode projecting portions Fig. 1 ref. 3a**) with linear edges opposing each other, separated by a predetermined distance, the width of each of the electrode segments incrementally narrows across the electrode segment in the direction away from the associated one of the linear edges (**ref. 3a**);

A front substrate (**glass substrate on the display screen side Fig. 2 ref. 1**) on which the plurality of display element electrodes are arranged along a row direction and a column direction (**Fig. 1**);

A barrier structure (**ribs or partitions ref. 12 and/or second ribs ref. 9**), the inner surfaces of which being disposed along the outer ends of the plurality of display element electrodes thereby defining a plurality of cells each of which is coated with a phosphor member and is activated by a discharge energy from of said plurality of display element electrodes so as to emit light (**col. 6 lines 49-56**); and

A back substrate (**glass substrate on the back side Fig. 2 ref. 2**) disposed opposing the front substrate with, the barrier structure therebetween.

Regarding claim 4, Komaki et al. disclose a plasma display apparatus according to claim 1, wherein the barrier structure comprises a plurality of separate units which define each of the plurality of cells so as to provide an evacuation channel structure (**Fig. 2 space between the two reference 9s**) in between the plurality of separate units.

Regarding claim 5, Komaki et al. disclose a plasma display apparatus according to claim 1, wherein the width of the barrier structure is varied (**Fig. 2 space between the two reference 9s and ribs or partitions ref. 12 and/or second ribs ref. 9**) in accordance with the width of each of the plurality of display element electrodes so as to define a channel passing through the plurality of cells in the column direction.

Regarding claim 10, Komaki et al. disclose a plasma display apparatus according to claim 1, wherein each of the plurality of cells is provided with a reflecting layer (**white**

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**dielectric layer ref. 8; also MgO protection layer ref. 6)** disposed below said phosphor member. A white dielectric layer would clearly reflect light. MgO is a known reflector of visible light.

Regarding claim 15, Komaki et al. U.S. Patent 6,236,160 disclose a plasma display apparatus **(title)** comprising a plurality of display element electrodes **(T-shaped electrode projecting portions Fig.1 ref. 3a)** each including a pair of electrode segments with linear edges opposing each other, separated by a gap of predetermined distance, each of the electrode segments having a portion where the width of which narrows across the electrode segment in the direction away from the associated one of the linear edges;

A front substrate **(glass substrate on the display screen side Fig. 2 ref. 1)** on which the plurality of display element electrodes are arranged along a row direction and a column direction;

A barrier structure **(ribs or partitions ref. 12 and/or second ribs ref. 9)**, the inner surfaces of which being disposed along the outer ends of the plurality of display element electrodes thereby defining a plurality of cells each of which is coated with a phosphor member **(fluorescent layer ref. 10)** and is activated by a discharge of energy from one of the plurality of display element electrodes so as to emit light **(col. 6 lines 49-56)**; and

A back substrate **(glass substrate on the back side Fig. 2 ref. 2)** disposed opposing the front substrate with the barrier structure therebetween.

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Claims 11 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Nunomura U.S. Patent 6,479,932.

Regarding claim 11, Nunomura disclose a plasma display apparatus **(title)** comprising: a plurality of display element electrodes **(transparent electrode Fig. 5 ref. 13)** each including a pair of rectangular electrode segments **(discharge part Fig. 6 ref. 61)** with linear edges opposing each other, separated by a gap of predetermined distance;

A front substrate **(glass substrate Fig. 1B and 5 ref. 11)** on which the plurality of display element electrodes are arranged along a row direction and a column direction **(Fig. 5)**;

A barrier structure **(partition walls Fig. 6 ref. 17)**, the inner surfaces of which being disposed along the outer ends of the plurality of display element electrodes, thereby defining a plurality of cells each of which is coated with a phosphor member **(powdery fluorescent substances Fig. 1C and ref. 20)** activated by a discharge of energy from one of the plurality of display element electrodes so as to emit light; and a back substrate **(glass substrate Fig. 1C and 5 ref. 12)** disposed opposing the front substrate with the barrier structure therebetween.

Regarding claim 13, Nunomura discloses a plasma display apparatus according to claim 11, further comprising a plurality of address electrodes **(data electrode Fig. 19 ref. 16D)** each having a linear portion extending along one side of the plurality of cells, the plurality of address electrodes each having a plurality of projecting portions **(large**

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**width part ref. 33)** disposed so as to face predetermined one of the pair of electrode segments constituting the associated one of the plurality of display element electrodes.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Komaki et al. U.S. Patent 6,236,160.

Regarding claims 2, 3 and 6, Komaki et al. disclose the claimed invention except for the limitation of electrode segments each having a semielliptical or semicircular shape. It has been held that a change in size or shape is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955). *In re Daily*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966). It would have been obvious to one having ordinary skill in the art to have electrode segments each having a semielliptical or semicircular shape, because changes in size or shape are within the skill of the art.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Komaki et al. U.S. Patent 6,236,160 in view of Kim U.S. Patent 5,384,514.

Regarding claim 6 in combination with rejection of 6 above, Komaki et al. teach all the limitations of claim 6, but fail to teach wherein the barrier structure is formed in a lattice pattern. Kim in the analogous art teaches a wherein the barrier structure is formed in a lattice pattern (**abstract**). Additionally, Kim teaches incorporation of such a lattice structure to improve the prevention of cross-talk (**abstract**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use a lattice barrier-structure in the PDP of Komaki et al. since such a modification would prevent cross-talk as taught by Kim.

Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Komaki et al. U.S. Patent 6,236,160 in view of Shinoda et al. U.S. Patent 5,661,500.

Regarding claims 7 and 8, Komaki et al. teach all the limitations of claim 7, but fail to teach address electrodes each locally disposed, with respect to the row direction, from the center of the associated column of the plurality of cells as viewed perpendicularly to the front substrate and the back substrate. Shinoda et al. in the analogous art teach address electrodes each locally disposed, with respect to the row direction, from the center of the associated column of the plurality of cells as viewed perpendicularly to the front substrate and the back substrate (**address electrodes Fig. 4 ref. Aj**). Additionally, Shinoda et al. teach incorporation of such an address electrode to improve the structure by selectively illuminating the unit luminescent area (**col. 7 lines 19-21**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use address electrodes from the center



column in the PDP of Komaki et al. since such a modification would allow for selectively illuminating the unit luminescent area as taught by Shinoda et al.

Regarding claim 8, Komaki et al. teach all the limitations of claim 8, but fail to teach wherein the height of the barrier structure is made 130  $\mu\text{m}$  or higher. Shinoda et al. in the analogous art teach a wherein the height of the barrier structure is made 130  $\mu\text{m}$  or higher (**col. 11 lines 46-50**). Additionally, Shinoda et al. teach incorporation of such a height to improve the structure by alleviating the shock by ion bombardment during discharge (**col. 11 lines 49-52**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use a 130  $\mu\text{m}$  barrier structure height in the PDP of Komaki et al. since such a modification would alleviate the shock by ion bombardment during discharge as taught by Shinoda et al.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Komaki et al. U.S. Patent 6,236,160 in view of Shinoda et al. U.S. Patent 5,661,500 and Kim et al. US Patent 6,137,227

Regarding claim 9, Komaki et al. teach all the limitations of claim 9, but fail to teach further comprising a plurality of dielectric projections formed on the plurality of address electrodes, each of the plurality of dielectric projections facing predetermined one of the pair of electrode segments constituting the associated one of the plurality of display element electrodes. Kim et al. in the analogous art teach further comprising a plurality of dielectric projections formed on the plurality of address electrodes, each of the plurality of dielectric projections facing predetermined one of the pair of electrode

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segments constituting the associated one of the plurality of display element electrodes (**dielectric layer Fig. 1 ref. 3 or Fig. 3 ref. 34 or Fig. 4a ref. 64**). Additionally, Kim et al. teach incorporation of such a dielectric projection facing predetermined one of the pair of electrode segments constituting the associated one of the plurality of display element electrodes to improve electrical insulation of the address electrode (**col. 1 lines 35-45**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use the dielectric projection in the PDP of Komaki et al. since such a modification would improve electrical insulation of the address electrode as taught by Kim et al.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nunomura U.S. Patent 6,479,932 in view of Okumura et al. U.S. Patent 6,100,633.

Regarding claim 14, Nunomura teaches all the limitations of claim 14, but fails to teach wherein each of the plurality of cells is provided with a reflecting layer disposed below the phosphor member. Okumura et al. in the analogous art teach wherein each of the plurality of cells is provided with a reflecting layer disposed below the phosphor member (**visible light reflective layer Fig. 2 ref. 11**). Additionally, Okumura et al. teach incorporation of such a reflective layer to improve the structure by increasing the reflection of the emitted light (**col. 5 lines 30-35**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use a reflective layer in the plasma display

panel of Nunomura since such a modification would increase the reflection of the emitted light as taught by Okumura et al.

### ***Response to Arguments***

Applicant's arguments filed December 30, 2002 have been fully considered but they are not persuasive. The applicant asserts that "This does not constitute an incremental narrowing across the electrode segment as claimed". The word increment means the process of increasing in number, size, quantity or extent. The word also means something added or gained. The examiner notes that the "T" electrode does incrementally narrow as there are two increments of narrowing on the left and right of the T.

### ***Allowable Subject Matter***

Claims 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 12, the following is an examiner's statement of reasons for allowance: The prior art of record neither shows nor suggests a plasma display apparatus including the combination of all the limitations as set forth in claim 12, and specifically a plurality of separate units which define each of the plurality of cells so as


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to provide an evacuation channel structure in between the plurality of separate units could not be found elsewhere in prior art.

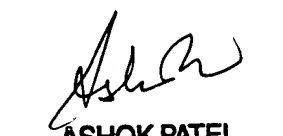
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenn Zimmerman whose telephone number is (703) 308-8991. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (703) 305-4794. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7382 for regular communications and (703) 308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is n/a.



Glenn Zimmerman  
February 17, 2003



ASHOK PATEL  
PRIMARY EXAMINER